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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,844	09/17/2003	Andy Werback	21119.0053(7157-500)	4879

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EXAMINER	
KITOV, ZEEV	

ART UNIT	PAPER NUMBER
2836	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

BM

Office Action Summary	Application No.	Applicant(s)	
	10/664,844	WERBACK ET AL.	
	Examiner	Art Unit	
	Zeev Kitov	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 3, 4, 6 - 13, 15 - 21, 23, 24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3, 4, 6 - 13, 15 - 21, 23, 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Examiner acknowledges a submission of the amendment and arguments filed on February 28, Applicant elected the Claims of Group I (claims 1 – 25) for examination without traverse. The remaining claims (26 – 37) have been canceled. 2005. Claims 2, 5, 14, 22 and 25 - 37 are deleted. Claims 1, 13 and 21 are amended. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1, 13 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A reason for that is in following limitation of the claim: "wherein said resistance of said in-rush current limiting resistor is substantially said first impedance of said switch circuit and said field effect transistor on state is substantially said second impedance of said switch circuit". A meaning of word "substantially" in this context is totally unclear. For purpose of examination it was nor given patentable weight.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki (US 644,229) in view of Preis at el. (US 4,891,728). Regarding Claims 1 and 6, Masaki discloses following elements: a switch circuit (element DCR Fig. 1) in series between a power source (AC in Fig. 1) and a load (Z in Fig. 1), the switch inherently has an off state with a high impedance and an on state with a low impedance; a time-delay circuit (elements C1, R2 in Fig. 1) coupled to the switch circuit and inherently having a time constant; wherein before the time constant has elapsed, the switch circuit is in the first (high) impedance thus limiting the in-rush current and after the time constant has elapsed, the switch circuit is in the second (low) impedance on state so that the load device is powered by the external power source.

It further discloses the in-rush current limiting resistor having a resistance of 60 ohms, rather than 1 – 5 ohms, as claimed. However, Masaki discloses that the value of resistor is set to limit the in-rush current to some specific value (col. 2, lines 7 – 20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Masaki solution by changing the 60 ohms resistor to a value of 5 – 10 ohms to provide a desired value of the in-rush current according to Masaki, because as Masaki states (col. 1, lines 12 – 23, col. 2, lines 7 –

20), the value of the in-rush current can be limited accordingly by setting an appropriate value of the in-rush current limiting resistor.

However, Masaki does not disclose the switch as the filed effect transistor. Preis at el. Disclose the switch being the filed effect transistor (element 11 in Fig. 1). Both references have the same problem solving area, namely in-rush current control and limitation. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the Masaki solution by replacing the thyristor of Masaki by the field effect transistor of Preis et al., because as well known advantages of the field effect transistor, such as lack of the gate current, which allows the FET being controlled by CMOS circuits, and extremely low voltage drop in the on state.

Claims 3, 4, 7, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki in view of Preis et al. and Horowitz et al. textbook, The Art of Electronics. As was stated above, Masaki and Preis et al. disclose all the elements of Claim1. However, regarding Claims 3 and 4, they do not disclose the value of the "on" state resistance of the MOS transistor. The textbook of Horowitz et al. discloses the values (see Table 3.5 on pages 164, 165), which satisfy the limitations in both claims. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Masaki solution by selecting the MOS transistor with specific "on" state resistance value according to Horowitz et al. textbook, because as well known in the art, selection of particular transistor in the design depends

on a trade off between such factors as the transistor quality (the "on" resistance value) and its price; resolving such trade off is a routine task for designer and is not considered as an innovation or an inventive step.

As per Claim 7, it recites over again the limitation of the on state resistance of the field effect transistor being 0.1 ohms (see above rejection of claims 3 and 4) and the resistance of the in-rush current limiting resistor being 5 ohms (see above rejection of claim 1).

As per Claim 13 it differs from Claim 1 rejected accordingly by its limitations of the field effect transistor having the resistance in the range of 0.05 to 0.2 ohms (see above rejection of claims 3 and 4) and the in-rush resistor having the resistance in the range of 5 to 10 ohms (see above rejection of claim 1).

Claim 15 differs from Claim 13 by the values of the field effect transistor and the in-rush current resistor as being 0.1 ohms and 5 ohms accordingly. See above rejection of Claim 13. The same considerations are applicable to the limitations of Claim 15.

Claims 8 – 9, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki in view of Preis et al. and Court Decision *In re Boesch,* 617 F.2d 272, 205 USPQ (CCPA 1980). As was stated above, Masaki and Preis et al. disclose all the elements of Claim 1. Regarding Claims 9 and 17, Masaki discloses a capacitor and a resistor (elements C1 and R2 in Fig. 1), the capacitor having a first end coupled to the external power supply (through transformer T in Fig. 1) and a second end coupled to the gate of thyristor. Prise et al. disclose the switching element as a field

effect transistor (element 11 in Fig. 2). However, it does not disclose a specific length of the time constant of the time-delay circuit. As well known in the art, in the inrush preventing circuits the time delay is to be adjusted to an expected duration of an inrush current. As well known from College courses of Electrical Circuits, the time delay is approximately equal to the time constant multiplied by factor of 2.3. Therefore, the value of the time constant is the result effective variable in determining the length of the delay (inrush current protection duration) and a particular value of the time constant can be found by optimization. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the time constant to any particular value, including 2 – 3 milliseconds, since according to the Court Decision, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki in view of Preis et al. and Kendall et al. (US 4,775,928). As was stated above, Masaki and Presi et al. disclose all the elements of Claims 1 and 13. However, regarding Claims 10 and 18, they do not disclose the hand held computing device. Kendall et al. disclose the radio device provided in a compact flash form factor, i.e. in the same hand-held terminal device (shown in Fig. 1); the low-power source is inherently provided in a handheld computing device and the radio device (element 148 in Fig. 2) is coupled to the handheld computing device (element 128 in Fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to have further modified the Masaki solution by combining his system modified according to Preis et al. teaching with the radio device provided in a compact flash form factor of Kendall et al., because such combination will be beneficial for manufacturer of the inrush-current limiting system expanding his marketing scope.

Claims 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki in view of Preis et al. and Pace et al. (US 6,140,490). As was stated above, Masaki and Preis et al. disclose all the elements of Claims 1and 13. However, regarding Claims 11 and 19, they do not disclose the device as being the radio device. Pace et al. disclose the radio device (shown in Fig. 1) operating from the battery and having the inrush current protection (col. 5, lines 1 – 12). Both references have the same problem solving area, namely protecting the electronic equipment against inrush currents. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Gauthier solution by adding the radio device according to Pace et al., because it would bring an expansion of business activity to the inrush current protection equipment manufacturer.

Claims 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki in view of Preis et al. and modern design practice. Claim 12 differs from Claim 1 by its limitation of the inrush current protection circuit being integrated into the power source. In modern design practice there is a strong tendency for integration of different previously separated elements into a single package. Therefore, it would have

been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Gauthier solution by integrating the inrush current protection circuit into the power supply source because as well known in the art, the integration results in reduction of size and increase in reliability of the equipment.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki in view of Preis et al. and Pace et al. As per Claim 21, it differs from Claim 13 rejected accordingly by its limitation of presence of the radio electronics having an in-rush current demand. Pace et al. disclose the radio device (shown in Fig. 1) operating from the battery and having the inrush current protection (col. 5, lines 1 – 12). Both references have the same problem solving area, namely protecting the electronic equipment against inrush currents. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Gauthier solution by adding the radio device according to Pace et al., because it would bring an expansion of business activity to the inrush current protection equipment manufacturer.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki in view Preis et al., Pace et al., Horowitz et al. textbook, The Art of Electronics and Court Decision *In re Boesch,* 617 F.2d 272, 205 USPQ (CCPA 1980). As was stated above, Masaki, Preis et al. and Pace et al. disclose all the elements of Claim 21. However, regarding Claim 23, they do not disclose particular resistances of the on state MOS transistor and of the current limiting resistor. According to Masaki, the resistor (R2

in Fig. 1) limits the current charging the capacitor (C1 in Fig. 1) when the transistor is in off state. Therefore, as well known in the art, the duration of the charge process depends on the resistor value, i.e. the resistance of the resistor is a result effective variable, which value was found in optimization process. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the resistor value to 5 ohms, since according to the Court Decision, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. As to selection of MOS transistor having specific "on" resistance value, the textbook of Horowitz et al. discloses the values (see Table 3.5 on pages 164, 165), which satisfy the Claim 7 limitations. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Gauthier solution by selecting the MOS transistor with specific "on" state resistance value according to Horowitz et al. textbook, because as well known in the art, selection of particular transistor in the design depends on a trade off between such factors as the transistor in the design depends on a trade off between such factors as the transistor quality (the "on" resistance value) and its price; resolving such trade off is a routine task for designer and is not considered as an innovation or an inventive step.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki in view Preis et al., of Pace et al., Horowitz et al. textbook, The Art of Electronics and Court Decision *In re Boesch,* 617 F.2d 272, 205 USPQ (CCPA 1980). As was stated above, Masaki, Preis et al. and Pace et al. disclose all the elements of Claim 21.

Regarding Claim 24, Masaki discloses a capacitor and a resistor (elements C1 and R2 in Fig. 1), the capacitor having a first end coupled to the external power supply and a second end coupled to the gates of the thyristor. Preis et al. disclose the field effect transistors (elements 11 in Fig. 1). However, they do not disclose a specific length of the time constant of the time-delay circuit equal to 2 – 3 milliseconds. As well known in the art, in the inrush preventing circuits the time delay is to be adjusted to an expected duration of an inrush current. As well known from College courses of Electrical Circuits, the time delay is approximately equal to the time constant multiplied by factor of 2.3. Therefore, the value of the time constant is the result effective variable in determining the length of the delay (inrush current protection duration) and a particular value of the time constant can be found by optimization. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the time constant to any particular value, including 2 – 3 milliseconds, since according to the Court Decision, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Response to Arguments

The Applicant's Arguments have been given careful consideration but they are moot in view of the new ground of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose current telephone number is (571) 272 - 2052. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272 – 2800, Ext. 36. The fax phone number for organization where this application or proceedings is assigned is (703) 872-9306 for all communications.

Z.K.
05/13/2005

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